

United States Patent [19]

Potter et al.

[11] Patent Number: 4,917,119

[45] Date of Patent: Apr. 17, 1990

[54] DRUG DELIVERY ARTICLE

[75] Inventors: Dennis L. Potter, Kernersville; Mark L. Raker, Clemmons; Henry T. Ridings, Lewisville; Andrew J. Sensabaugh, Jr., Winston-Salem; Amos E. Westmoreland, Winston-Salem; Donna K. Woods, Winston-Salem; Chandra K. Banerjee, Pfafftown, all of N.C.

[73] Assignee: R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

[21] Appl. No.: 277,731

[22] Filed: Nov. 30, 1988

[51] Int. Cl.⁴ A61M 15/06

[52] U.S. Cl. 131/273; 131/194; 128/202.21; 128/203.15; 128/204.13; 128/200.14; 128/204.17

[58] Field of Search 131/273, 196, 194, 195, 131/197; 128/202.21, 203.12, 203.13, 203.15, 203.17, 203.26, 204.13, 200.14, 200.23, 200.24, 204.17, 202.27

[56] References Cited

U.S. PATENT DOCUMENTS

2,104,266 1/1938 McCormick .

3,258,015 6/1966 Ellis et al. .

3,683,936 8/1972 O'Neil, Jr. .

3,766,079 10/1973 Jackman .

3,875,083 4/1975 Murtaugh .

3,924,603 12/1975 Chapin .
3,968,048 7/1976 Bolan .
4,058,474 11/1977 Keyes et al. .
4,067,313 1/1978 Donnelly .
4,079,742 3/1978 Rainer et al. .
4,149,548 4/1979 Bradshaw .
4,206,068 6/1980 Davis .
4,284,089 8/1981 Ray .
4,338,098 7/1982 Yamaji .
4,393,884 7/1983 Jacobs .
4,574,051 3/1986 Matthews et al. .
4,774,971 10/1988 Vieten .

FOREIGN PATENT DOCUMENTS

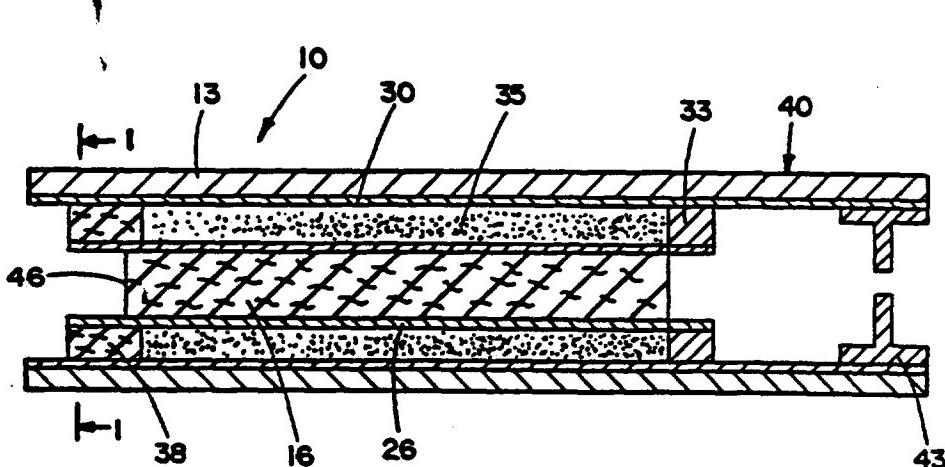
276250 6/1967 Australia .
8602528 5/1986 PCT Int'l Appl. .

Primary Examiner—V. Millin

[57] ABSTRACT

A drug delivery article provides a dose of a volatilized drug by heating a drug carrying substrate, but not burning any material. A heat source which includes a metal oxide (e.g., calcium oxide), an anhydrous metal sulfate (e.g., magnesium sulfate), an inorganic salt and a sugar, generates heat upon contact of water therewith. The heat produced by the heat source heats the drug in a heat exchange relationship therewith. The drug volatilizes and is drawn into the mouth of the user of the article. Typical heat sources heat the drug to a temperature within 70° C. to 200° C. for 4 to 8 minutes.

70 Claims, 1 Drawing Sheet



RECEIVED
PHILIP MORRIS MANAGEMENT CORP.
LAW DEPT-PATENT SECTION

APR 26 1990

D.G. 3
NOTED G. de la

2021391962